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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,290	10/27/2003	Bernhard Ulrich Koelle	10031055-1	2768

7590 12/20/2005

AGILENT TECHNOLOGIES INC.
Legal Department, DL429
Intellectual Property Administration
P. O. Box 7599
Loveland, CO 80537-0599

EXAMINER

NGUYEN, PHILLIP

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/694,290	KOELLE ET AL.	
	Examiner	Art Unit	
	Phillip Nguyen	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-20 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/27/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-3, 9 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites “wherein both R1 and R2 are at least 99.5%” and claim 1 recites “wherein R1 and R2 have different respective values one of which is greater than 99.9%” which is conflicting because 99.5% is less than 99.9%.

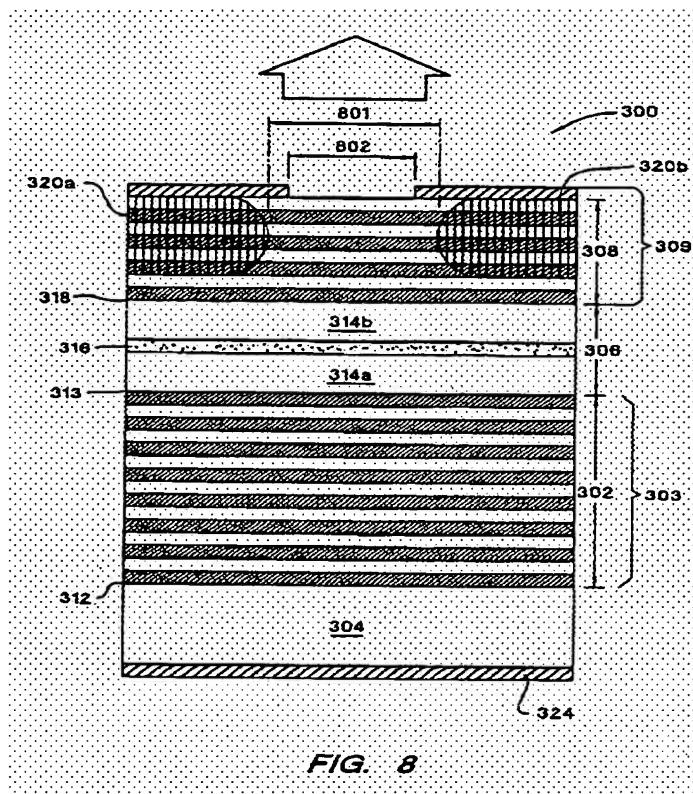
Claims 9 and 20 recite “the cavity extension is disposed adjacent to the second mirror and has the same composition as one of the different refractive index material in the second mirror stack” which is not clear which composition applicant intends to claim. It is suggested to rewrite the claim such as -- the cavity extension is disposed adjacent to the second mirror and has the same **molecular** composition as one of the different refractive index material in the second mirror stack”.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.



Claims 1-3, 6-7, 9-11, 13, 15-16, 18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al. ('568).

With respect to claim 1, Wang discloses in Fig. 8 (above) a vertical cavity surface emitting laser (VCSEL) "operable" to generate single-mode laser light at an operative wavelength, comprising: a light-emitting surface (top-center surface of the VCSEL); and a monolithic longitudinal stack structure including a first mirror 303 having an optical reflectivity R_1 for light at the operative wavelength, a second mirror 308 having an optical reflectivity R_2 for light at the operative wavelength, wherein R_1 and R_2 have different respective values one of which is greater than 99.9% and another of which is less than 99.7% (col. 6, lines 30-31 and col. 7, lines 5-6), a cavity region disposed between the first mirror and the second mirror and

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including an active light generation region 316 and a cavity extension region 314a/314b; wherein the longitudinal stack structure further includes an ion-implanted current confinement region characterized by a peak longitudinal implant concentration separated from the cavity region by a longitudinal distance greater than $0.5\ \mu\text{m}$ (col. 9, lines 61-63 and col. 11, lines 2-7).

With respect to claim 2, Wang further discloses a metal contact disposed on the light emitting surface and defining an aperture (802), wherein the ion-implanted current confinement region defines a current aperture larger than the aperture of the metal contact (see Fig. 8).

With respect to claim 3, the claim has been rejected under 112, 2nd paragraph, however, it is note that Wang discloses both R1 and R2 are greater than 99.5% (abstract).

With respect to claim 6, Wang discloses each of the first and second mirrors comprises a respective stack of alternating layers of different refractive index materials each having a longitudinal optical thickness substantially equal to one-quarter of the operative wavelength, and the cavity region without the cavity extension region has a longitudinal optical thickness substantially equal to the operative wavelength (col. 5, lines 55-64).

With respect to claim 7, Wang discloses in Fig. 8 the cavity extension 314a/314b being disposed adjacent to one of the alternating layers 313 and 318 of first and second mirrors.

With respect to claim 9, Wang discloses cavity extension layer 314b being disposed adjacent to the second mirror 308 and has the same composition as one of the different refractive index materials of the second mirror stack 308 which is AlGaAs.

With respect to claim 10, Wang discloses the cavity extension region 314b being disposed between active region 316 and the second mirror.

With respect to claim 11, Wang discloses the first portion of the cavity extension 314a being adjacent to the first mirror 302 and second portion 314b being adjacent to the second mirror 308.

With respect to claim 13, Wang discloses the diameter of current aperture 336 being larger than that of electrode 322 which is already 10 μm (col. 9, lines 40-44).

With respect to claims 15-16, 18 and 20, Wang discloses the product; it is inherent product by process for performing the recited method.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. ('568). Wang discloses the claimed invention except for teaching an array of claimed laser having two or more lasers. It would have been obvious to the one having ordinary skill in the art at the time the invention was made to provide 2 or more lasers in an array in order to reduce manufacture cost or for different purposes of use.
4. Claims 4-5, 8, 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. ('568) in view of Marion ('928). Wang discloses the claimed invention except for the thickness of the cavity extension region relative to the operative wavelength of the laser device. Marion discloses an array of laser including 4 different cavity lengths of 4 different

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lasers, wherein each cavity length causes the laser to produce a different wavelength. It would have been obvious to the one having ordinary skill in the art at the time the invention was made to provide a cavity extension as taught by Marion to Wang in order to control the output wavelength of the laser.

Allowable Subject Matter

5. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Communication Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 571-272-1947. The examiner can normally be reached on 9:00 AM - 6:00 PM.

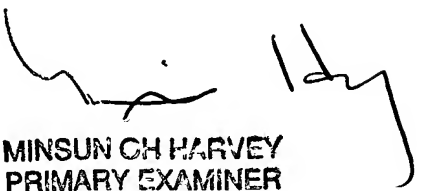
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY, can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MINSUN CH HARVEY
PRIMARY EXAMINER